

PE SCREENING EVIDENCE WITH THE MEGAMAXX™ ALTERNATE LIGHT SOURCE SYSTEM

A. SCOPE

- A.1 The megaMAXX™ Alternate Light Source (ALS) System includes seven handheld visible light sources (a 455 nm, 470 nm, 505 nm, 530 nm, 590 nm, 625 nm, and white light source), one handheld ultraviolet (UV) light source, and red, orange, and yellow fluorescence viewing glasses. These light sources and glasses can be used in the laboratory and at crime scenes to examine evidentiary items for the presence of biological stains which may not be visible to the naked eye. Semen and saliva stains frequently fluoresce with the use of an alternate (visible or ultraviolet) light source; they can appear as a bright fluorescent area on a dark background or as a dark area when the background itself fluoresces. While most bloodstains can be detected with the naked eye, blood deposited on a dark colored item may be difficult to locate. The use of an alternate light source can sometimes provide the contrast needed to locate bloodstains that are not readily visible otherwise. The light source(s) and viewing glasses used will depend on the kind of biological stain being screened for and also the surface on which the stain is deposited. It may be necessary to try multiple combinations of light sources and fluorescence viewing glasses to determine which combination is most suitable for a particular item of evidence.

B. QUALITY CONTROL

Not applicable

C. SAFETY

- C.1 Treat all biological samples as potentially infectious. Gloves, a face mask, and a lab coat must be worn.
- C.2 In order to prevent eye damage, UV filtering glasses or goggles must be worn during an examination conducted with the megaMAXX™ ultraviolet light source.
- C.3 Due to the high intensity of the megaMAXX™ light sources, do not look directly into any of the lights during use.

D. REAGENTS, STANDARDS AND CONTROLS

- D.1 70% Reagent Alcohol (Decontamination)
- D.2 Bleach-based cleaner, e.g. Clorox Bleach Germicidal Cleaner (Decontamination)

E. EQUIPMENT

- E.1 MegaMAXX™ handheld visible and UV light sources
- E.2 Fluorescence viewing glasses

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E.3 UV filtering glasses or goggles

E.4 AAA batteries

F. PROCEDURES

- F.1 All lights in the immediate area should be turned off when using the megaMAXX™ visible and UV alternate light sources to detect stains. During use of the white light source, room lighting can remain on.
- F.2 If a visible alternate light source is being utilized, fluorescence viewing glasses must be worn. While visible light sources can overpower any fluorescence present, the glasses serve to filter out this incident light. The orange glasses are often ideal for use with the 455 nm (royal blue) light source, but any combination of alternate light sources and fluorescence viewing glasses may be used.
- F.3 When using the UV alternate light source, UV filtering glasses or goggles must be worn, but it is not necessary to use the fluorescence viewing glasses as UV fluorescence re-emits as visible blue light. However, use of yellow or orange glasses can sometimes enhance contrast and improve visibility of UV fluorescence on certain surfaces.
- F.4 To activate the light, depress the on/off button on the body of the desired light source. Scan the evidence or crime scene by slowly sweeping the light over the entire item or scene area, being careful not to come in contact with the surface being examined.
- F.5 Mark stains of interest by encircling the area with a permanent ink marker.
- F.6 Upon completion of the examination, ensure that all used light sources are off.
- F.7 The light sources and fluorescence viewing glasses can be cleaned with a 70% ethanol solution or Bleach-based cleaner, e.g. Clorox Bleach Germicidal Cleaner.
- F.8 If the intensity of a light source appears less than normal, replace the three AAA batteries in the battery holder.

G. INTERPRETATION GUIDELINES

Not applicable

H. REFERENCES

- H.1 *Technical Information megaMAXX™ ALS System*, 2009, Sirchie, Youngsville, NC.
- H.2 Kobus, H.; Silenieks, E.; Scharnberg, J. "Improving the Effectiveness of Fluorescence for the Detection of Semen Stains on Fabrics," *J. Forensic Sci.*, 2002, 47, 1-5.
- H.3 Nelson, D.G.; Santucci, K.A. "An Alternate Light Source to Detect Semen," *Acad. Emerg. Med.* 2002, 9, 1045-1048.
- H.4 Virkler, K.; Lednev, I.K. "Analysis of Body Fluids for Forensic Purposes: From Laboratory Testing to Non-Destructive Rapid Confirmatory Identification at a Crime Scene," *Forensic Sci. Int.* 2009, 188, 1-17.

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